GTI Project Number: 40453-01

COMPARATIVE ANALYSIS OF TWO SAMPLES FROM KREHER PARK, ASHLAND, WISCONSIN

SECOND ADDENDUM TO THE REPORT: COMPARATIVE ANALYSIS OF NAPL RESIDUES FROM THE NSP ASHLAND FORMER MGP SITE AND THE ASHLAND LAKEFRONT PROPERTY (KREHER PARK)

Prepared by

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1700 South Mount Prospect Road
Des Plaines, Illinois 60018

For

NORTHERN STATES POWER COMPANY
414 Nicollet Mall
Minneapolis, Minnesota 55401

April, 2001

EXECUTIVE SUMMARY

The Institute of Gas Technology (IGT) has conducted laboratory analysis of two samples retrieved from Kreher Park in Ashland, Wisconsin. Samples were collected and described according to information obtained by URS Corporation. Sample "NAPL/Water" was retrieved from the upgradient trench, south of the Wisconsin Central Railroad tracks, 34 feet east of the concrete pad. This sample consisted of a NAPL-water mixture. Sample "12" Clay pipe" was retrieved from the interior of a 12 inch clay pipe found in the seep trench north of the railroad tracks. This pipe is located approximately 24 feet south of MW-7, and 41 feet west of the 3 inch stand pipe marking the former LP loading pipe. This sample was highly viscous in nature. Samples were tested using identical methods described in the report, *Comparative Analysis Of NAPL Residues From The NSP Ashland Former MGP Site And The Ashland Lakefront Property (Kreher Park)* (NAPL Report) and evaluated against results of that report. This document serves as the Second Addendum to the NAPL Report (March, 2000.) An initial Addendum Report, *Comparative Analysis Of Sediment Samples From The Chequamegon Bay Near The Kreher Park Shoreline, Ashland Wisconsin*, was prepared in May, 2000.

Using GC/FID fingerprinting techniques, results concluded that the NAPL/Water material and the 12" Clay Pipe material are highly similar (nearly identical) in tar composition, and are very similar to the NAPL sample from MW-7, previously described in the NAPL Report. It is likely that all these samples share a common source. The tar from samples NAPL/Water and 12" Clay Pipe were different from tar found in previously examined NAPL samples from wells MW-15 and EW-1.

Samples NAPL/Water and 12" Clay Pipe each possess a middle weight petroleum fraction. The samples NAPL/Water and 12"Clay Pipe contained 19-21 percent aliphatic hydrocarbon. These percentages are similar to the percentage of aliphatic fraction found in sample MW-7. As concluded in the NAPL Report, the NAPL material from well MW-7 is consistent with wood treatment activities reportedly conducted at Kreher Park.

INTRODUCTION

Northern States Power Company (NSP) has contracted the Gas Technology Institute (GTI) to determine whether samples retrieved from locations within Kreher Park in Ashland, Wisconsin are chemically similar or dissimilar to NAPL resides found in wells located at the NSP former MGP site (MW-15 and EW-1) and in an area of reported former wood treatment operations in Kreher Park (MW-7). The results of the analysis serve as an Addendum to the report, *Comparative Analysis of NAPL Residues From The NSP Ashland Former MGP Site And The Ashland Lakefront Property (Kreher Park)* (NAPL Report).

GTI and its subcontractor (META Environmental, Inc.) have completed forensic analysis of two samples. Analyses of these samples have included identification and/or quantification of: 1) monocyclic aromatic hydrocarbons (MAHs), 2) polycyclic aromatic hydrocarbons (PAHs), and, 3) aliphatic hydrocarbons and polar hydrocarbons. Analyses and hydrocarbon fingerprinting were performed using gas chromatography with flame ionization detection (GC/FID). These analyses are described in the NAPL Report. The purpose of these tests was to determine chemical similarity or dissimilarity between the Kreher Park samples ("NAPL/Water" and "12" Clay Pipe") and between previously described characterization of NAPL samples from wells MW-15, MW-7 and EW-1 (NAPL Report.) Results of all sample analyses are included in this Addendum Report, with expanded analytical data detailed in Appendix A of this Addendum Report.

SITE BACKGROUND

The Kreher Park area is reclaimed land of which the south boundary defined the original lake shoreline. Beginning in the mid to late 1800's, the area was filled with a variety of materials including slab wood, concrete, demolition debris, municipal and industrial wastes and earth fill that created the land now occupied by the park. Kreher Park area was constructed to create land for the lumber operations that subsequently followed at the site. Several lumber operations occupied the property, but the largest facility and longest tenured was the John Schroeder Lumber Company. Schroeder's "articles of incorporation" stated that one of the company's business purposes was to: "...manufacture and deal in preservative chemicals, to own and operate wood preservation plants and plants for the manufacture and stillization of wood-byproducts, to explore and develop lands for gas, minerals, ores and oils, and to collect, work, use, and treat any timber and all forest and other vegetable products." Schroeder's Ashland Sawmill/Wood Processing facility was described as, "one of the largest and best equipped mills in the greater northwest." Details of the Schroeder operation, including the physical location of facility appurtenances, were obtained from interviews of eyewitnesses, review of historic documents, as well as fire insurance (Sanborn) maps.

Following Schroeder Lumber's tenure, Ashland County transferred title to the City of Ashland in 1942, which has owned the site since. During some time in the 1940's and 50's, the City operated a portion of the site in the present northwest area as a waste disposal facility (landfill). In 1951, the Wastewater Treatment Plant (WWTP) was constructed and operated as the City's sewage treatment facility until 1989. During exploratory work to expand the WWTP into the Kreher Park area in 1989, soil and groundwater contaminated with creosote/coal tar compounds were encountered.

METHODS

Sample collection was performed by URS Corporation and described for the purposes of this report. Sample NAPL/Water was collected on February 20, 2001. Sample 12" Clay Pipe was collected on February 21, 2001. Sample "NAPL/Water" was retrieved from the upgradient trench, south of the Wisconsin Central Railroad tracks, 34 feet east of the concrete pad. This sample consisted of a NAPL-water mixture. Sample "12" Clay pipe" was retrieved from the interior of a 12 inch clay pipe found in the seep trench north of the railroad tracks. This pipe is located approximately 24 feet south of MW-7, and 41 feet west of the 3 inch stand pipe marking the former LP loading pipe. This sample was highly viscous in nature.

Sample NAPL/Water was prepared for analysis by liquid:liquid extraction using dichloromethane (DCM) (EPA 3510 mod.) Sample 12" Clay Pipe was prepared by solvent extraction using DCM (EPA 3570 Draft). The extracts were dried with sodium sulfate and concentrated to known final volumes. A portion of each extract was spiked with internal standard and analyzed by gas chromatography with flame ionization detection (GC/FID) (EPA 8100 mod.)

An additional portion of each extract was silica gel fractionated (simulated distillation) into aliphatic, aromatic, and polar fractions (EPA 3630 mod.). The fractions were concentrated to a one milliliter, spiked with internal standard and analyzed by GC/FID (EPA 8100 mod.)

A chromatographic fingerprint was obtained from each sample using GC/FID, identifying and/or quantifying each of the compound classes: 1) monocyclic hydrocarbons (MAHs), 2) polycyclic aromatic hydrocarbons (PAHs), and, 3) aliphatic hydrocarbons and polar hydrocarbons.

The results of the analyses are included in this Addendum report, with expanded analytical data detailed in Appendix A of this Addendum report.

RESULTS

The GC/FID fingerprint data from the Kreher Park samples (NAPL/Water and 12" Clay Pipe) shows that the aromatic fraction (tar) of both samples is highly similar to the aromatic component in the previously examined NAPL sample from the former wood treatment operations in Kreher Park (MW-7). Particular observations drawn from the results are as follows:

- The GC/FID fingerprints of the whole extracts of the samples NAPL/Water and 12" Clay Pipe are highly similar (nearly identical), exhibiting a tar-like pattern.

- The GC/FID fingerprints of the whole extracts and aromatic fractions of the samples NAPL/Water and 12" Clay Pipe are similar to the whole extract and aromatic fraction GC/FID fingerprint of the NAPL sample from well MW-7.

- The GC/FID fingerprints of the aromatic fractions (tar) of the samples NAPL/Water and 12" Clay Pipe are different from the aromatic fractions in NAPL samples from wells MW-15 and EW-1 (on or below the Ashland NSP former MGP property).

- When compared with standard samples of known origin, the samples NAPL/Water and 12" Clay Pipe do not exhibit the characteristics of a carburetted water gas tar.

- The percentage of total aliphatic hydrocarbons (middle petroleum distillates) and total aromatic hydrocarbons (tar fraction) is very similar between the NAPL/Water and 12" Clay Pipe samples.

  - Results from the simulated distillation of the sample NAPL/Water indicates that the percentage of middle petroleum distillates is 19 percent, with 75 percent aromatic fraction.

  - Results from the simulated distillation of the sample 12" Clay Pipe indicates that the percentage of aliphatic hydrocarbons (middle petroleum distillates) averages 20.5 percent, with 80 percent aromatic fraction.

The actual GC/FID scans or fingerprints for each sample are shown in Appendix A of the Addendum report.

DISCUSSION OF RESULTS

Results of all testing indicated the following:

1) The aromatic component (tar) from samples NAPL/Water and 12" Clay Pipe from Kreher Park are highly similar to each other and to the tar component in the NAPL sample from Well MW-7. These results are consistent with the fact these samples were retrieved from locations proximal to each other.

2) The tar component in samples NAPL/Water and 12" Clay Pipe is different from the aromatic component in NAPL from wells MW-15 and EW-1. Compared with known standards, the tar from the tested samples is not identified as a carburetted water gas tar. In comparison, tars from wells MW-15 and EW-1 have been identified as carburetted water gas tars (refer to NAPL Report).

3) The quantity (percentage) of aliphatic compounds in samples NAPL/Water and 12" Clay Pipe are highly similar to each other and are different from NAPL samples derived from wells MW-15 and EW-1. Sample NAPL/Water consists of 19% middle petroleum distillate, with 75% aromatic (tar) fraction. In sample 12" Clay Pipe, 20.5% is middle petroleum distillate, with 80% aromatic (tar) fraction. These proportions bear similarity to those found in the sample from Well MW-7: middle petroleum distillate – 28%, aromatic fraction – 65%.

CONCLUSIONS

Results of testing and analysis of samples retrieved from Kreher Park in Ashland, Wisconsin (NAPL/Water and 12"Clay Pipe) are consistent and predictable. Whole extracts, aromatic and aliphatic fractions of samples NAPL/Water and 12" Clay Pipe are highly similar to each other. The tar contamination present in the samples is highly similar in composition to the tar found in the NAPL material from Kreher Park (MW-7 sample). Based upon previous analysis and comparison of the well MW-7 NAPL sample against known standards, results indicate that the tested samples are not carburetted water gas tars. Tars associated with samples NAPL/Water and 12" Clay Pipe and the NAPL sample from well MW-7 are likely from the same source. This result is highly consistent with the fact that the all samples originated from Kreher Park and were consequently affected by operations on this property.

Testing and analysis of the samples from Kreher Park also indicate that the tar is from a separate source from NAPL samples retrieved from wells MW-15 and EW-1. The tar component in the well samples from MW-15 and EW-1 is dissimilar to the tar component in samples NAPL/Water and 12" Clay Pipe.

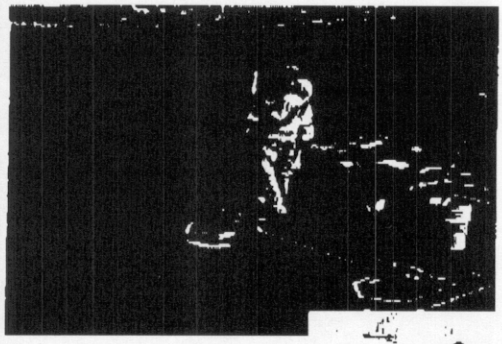
Laboratory analysis of the aliphatic (oil fraction) and aromatic (tar) fractions of the samples NAPL/Water and 12" Clay Pipe reveal that the samples are similar to each other and to the NAPL sample from well MW-7. The samples are dissimilar to NAPL samples previously retrieved and tested from wells MW-15 and EW-1, in terms of percent fractions. This is consistent with evidence indicating that the sources of the contamination for the Ashland former MGP site and Kreher Park are separate and distinct.

Based on the results of analyses performed and in comparison with reference standards, GTI concludes that the tar component in the samples from the Kreher Park (NAPL/Water and 12" Clay Pipe) and the tar component in the NAPL material from well MW-7 (located within Kreher Park) are highly similar and from the same source. The tar contained in the samples is dissimilar to the carburetted water gas tar component in the NAPL samples from wells on the NSP Ashland Property, MW-15 and EW-1. The percent aliphatic fraction in samples NAPL/Water and 12" Clay Pipe are also similar to the NAPL sample from well MW-7. As concluded in the NAPL Report, the NAPL material from well MW-7 is consistent with wood treatment activities reportedly conducted at Kreher Park.

APPENDIX A

Environmental Forensic Report

Hydrocarbon Fingerprinting Former MGP Site, Ashland, WI



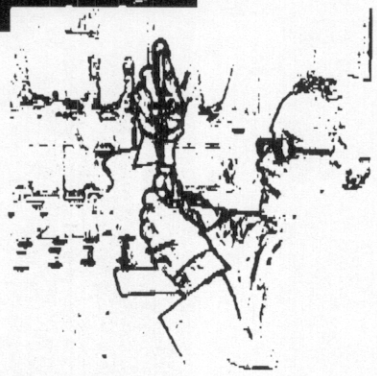
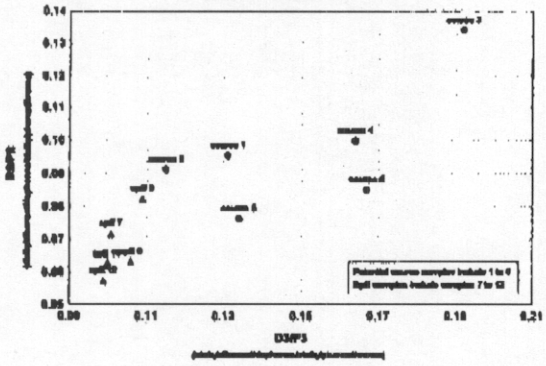


Figure 1. Double Ratio Plot



Report To:

Gas Technology Institute
1700 S. Mt. Prospect Road
Des Plains, IL 60018

Report By:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472

March 29, 2001

Identifying and allocating sources of pollutants in complex environments.

META Environmental, Inc.
ENGINEERING & CHEMISTRY

Final Laboratory Report

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472

Phone: 617-923-4662
Fax: 617-923-4610
e-Mail: metaenv@aol.com

Certification

This certifies that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed herein. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Director and Quality Assurance Officer, as verified by the following signatures.

David R. Craig — Date: 3/30/01
Laboratory Director, META Environmental, Inc.

David M. Mauro — Date: 3/30/01
Quality Assurance Officer, META Environmental, Inc.

Sample Delivery Group Narrative

Project: Ashland MGP Site Forensic Analyses

Client: Gas Technology Institute
1700 S. Mt. Prospect Road
Des Plains, IL 60018

Report Contact: Dr. Diane Saber

Date of Receipt: 03/01/01

Sample Summary:

The samples received for this project are summarized in the attached sample login forms.

META Project Number: I05001-60

Chain of Custody

Samples were received in good condition on March 1st, 2001. The internal temperature of the shipment container was 2.5°C upon receipt.

Internal chain of custody procedures were followed after sample receipt. Samples were stored in a locked refrigerator. A sample custody logbook contains the record of sample removal from the secure sample storage area to the sample preparation laboratory. The custody record for the sample extracts is present on the sample extraction logbook page.

The disposal of samples and extracts will be authorized 1 month after the release of this data report. Sample disposal will be documented.

Methods

Sample NAPL/Water was prepared by liquid:liquid extraction using dichloromethane (DCM) (EPA 3510 mod.) Sample 12" Clay pipe was perpared by solvent extraction using DCM (EPA 3570 Draft). The extracts were dried with sodium sulfate and concentrated to known final volumes. A portion of each extract was spiked with internal standard and analyzed by GC/FID (EPA 8100 mod.)

An additional portion of each extract was silica gel fractionated into aliphatic, aromatic, and polar fractions (EPA 3630 mod.). The fractions were concentrated to a one milliliter, spiked with internal standard and analyzed by GC/FID (EPA 8100 mod.)

Results

Hydrocarbon fingerprints for whole, aliphatic, aromatic, and polar organic fractions are presented in Appendix B.

Sample results are presented in summary forms (CLP Form 1 equivalent) in Appendix C.

Quality Control

Analyte Flags

The detection limits were determined as the sample equivalent of the lowest linear initial calibration standard. Analytes measured between 50% and 100% of the lowest standard were reported as "estimated" and flagged with the letter "J." No value was reported above the calibration range. Undetected analytes were flagged with the letter, "U." Analytes marked with a "B" were detected in the associated blank and should be reviewed for a possible positive bias. None of these deviations were thought significant enough to compromise the integrity of the reported values.

Holding Times

All samples were extracted within holding times. All samples and extracts were stored at 4°C ± 2°C prior to extraction and analysis. All extracts were analyzed within 40 days of sample preparation.

Surrogate Spikes

Extraction surrogates were added to the aqueous samples prior to extraction. Recoveries and

QC limits for all surrogates are reported with the sample results. All surrogate recoveries were within QC limits with exceptions. Because of 25-fold dilution and matrix interference, recovery of the surrogate compound, 2-fluorobiphenyl, was above the QC limit.

Blanks

Sample Water/NAPL was associated with an extraction blank containing toluene. This analyte in the affected sample was flagged with the letter "B". Any extracts with concentrations of this analyte less than 5 times greater than that in the blank should be reviewed for positive bias.

Internal Standards

Internal standards were recovered within acceptable QC limits (85%-115%) relative to the continuing calibration standard with exceptions. Any analytes associated with internal standards outside of these limits were externally calculated.

Duplicate Samples

The %D of the duplicate sample was within QC limits (<50%) for all analytes.

Interpretation

The GC/FID fingerprints of the whole, aliphatic, and aromatic portions of the two samples, Water/NAPL and 12" Clay Pipe, were very similar. Both samples exhibited characteristics of pyrogenic and petrogenic substances, with the pyrogenic portion predominant. The substantial amounts of parent PAHs (e.g., naphthalene, phenanthrene, pyrene) indicated the presence of tar. However, the unresolved complex mixture (UCM or "hump") centered around about 17 minutes and the numerous small peaks from about 10 minutes to about 25 minutes indicated the presence of a middle distillate of petroleum.

The aliphatic fractions of both samples showed a middle distillate of petroleum. The low abundance of normal alkanes relative to the isoprenoid hydrocarbons, pristane and phytane, indicated moderate weathering.

The whole, aliphatic, and aromatic fingerprints for samples Water/NAPL and 12" Clay Pipe are very similar to those of sample MW-7 (reported Dec. 14, 1999). It is likely that these samples share a common source.

Table 1 presents the total hydrocarbon concentrations of the whole, aliphatic, and aromatic portions of each sample. The results for sample MW-7 are included for comparison.

It is important to note that samples MW-7 and Water/NAPL consisted mostly of water with sheens and small droplets of NAPL. The entire sample was extracted and then a portion of each extract was evaporated to dryness and the residue weighed. All concentrations have been calculated and are reported relative to the residue weight of sample. Because the weights and

volumes of the residues are so small in some cases, and because some portion of the volatile fraction of the organic material is lost on evaporation, the residue weights can be under- or over-estimated. The resulting concentrations are consequently biased. For example, the TEH concentration for sample MW-7 of 1,270,000 mg/kg is impossible because it is greater than one million parts per million. However, the relative amounts of total, aliphatic, and aromatic fractions, expressed as percentages, remain accurate. For example, the sum of the aliphatic, aromatic, and polar fraction concentrations for sample Water/NAPL is 643,900 mg/kg which is 98.4% of the TEH for that sample, as expected.

Finally, relatively low amounts of some compounds were detected in the polar fractions of each sample. However, most of material in the polar fractions was aromatic compounds that were not fully recovered in the aromatic fraction. The polar fractions of samples Water/NAPL and 12" Clay Pipe were very similar except that the 12" Clay Pipe sample contained two large peaks at about 32 minutes. These compounds may be fecal sterols, indicators of raw sewage. However, this identification should be confirmed by GC/MS analysis.

Table 1
Aliphatic and Aromatic Hydrocarbons in NAPL Samples

Sample	TEH (mg/kg)	Aliphatic (mg/kg)	Aromatic (mg/kg)	% Aliphatic	% Aromatic
MW-7*	1,270,000	350,000	830,000	28	65
Water/NAPL*	654,000	122,000	488,000	19	75
12" Clay Pipe	42,800	9,030	34,100	21	80
12" Clay Pipe Dup	43,500	8,870	34,100	20	80

TEH - total extractable hydrocarbons
* Concentration based on residue weight

References

1. META Environmental, Inc., Laboratory Quality Assurance Plan, April 1999.

2. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, May 1997.

Appendix A

Chains of Custody

META ENVIRONMENTAL SAMPLE RECEIPT							
Lab ID	Field ID	Matrix	Analysis	Date Sampled	Date Received	Client/ Project	Container/ Storage
IG010301-01	Water/NAPL	NAPL	2006/4007	02/20/01	03/01/01	I05001-60	1 ltr jar
IG010301-02	12" Clay pipe	Soil	2508/4007	02/21/01	03/01/01	I05001-60	8 oz jar

Rama
03/01/01

Job No. 05644-097

CHAIN OF CUSTODY RECORD

GENERATOR INFORMATION

Facility NSP - Ashland

Address

Telephone ( )

COLLECTOR INFORMATION

Collected by Ben Nelson c/o URS

Address 5250 E. Terrace Dr. Ste I
Madison, WI 53718

Telephone (608) 244-5656

SAMPLE INFORMATION

	No.	DEPTH	TYPE	DATE	TIME
IG010301-01	1	NA	coal tar	2/20/01	1015
IG010301-02	1	N/A	clay pipe	2/21/01	N/A
			Recd @ 2.5°C		

Suspected Waste Constituents coal tar volatiles

Field Conditions/Remarks * Analyze for Modified 8100 fingerprint. Contact Dave Trainor (URS - Madison) w/ questions @ 608-244-5656

SAMPLE ALLOCATION

Name

Address

Telephone ( )

____ sample received intact

____ sample received damaged or missing (describe on back)

(Signature) (Date)

CHAIN OF POSSESSION

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
1. DH Zoll	2-28-01	1515			
2.			Raina Huebner	03/01/01	950 am
3.					
4.					

Distribution

White-w/shipment-for consignee files
Blue-w/shipment-forward to Dames & Moore
Dave Mauro

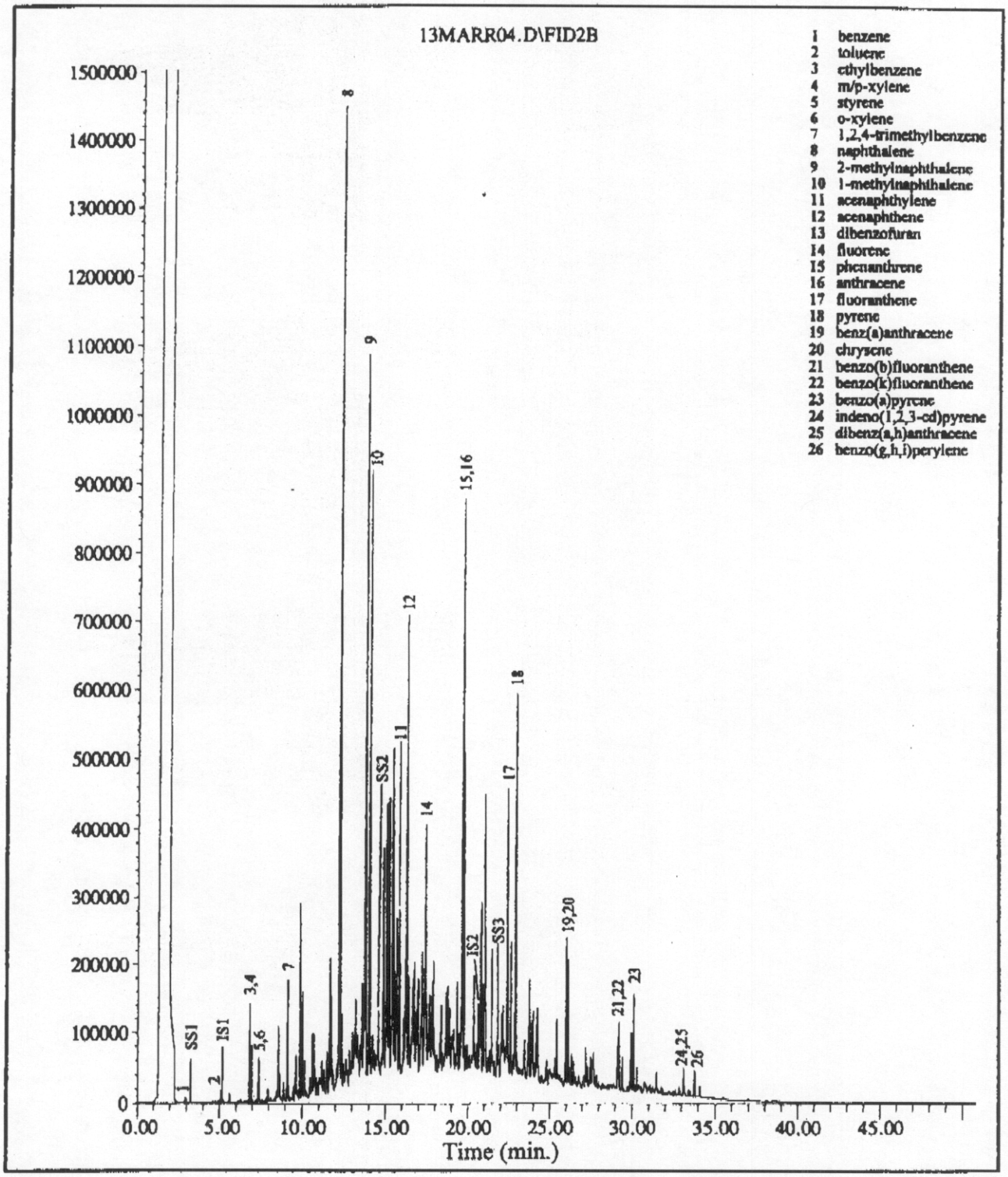
Pink-with report
Goldenrod-Dames & Moore - Job File

Dames & Moore

Appendix B

GC/FID Fingerprints

GC/FID Fingerprint

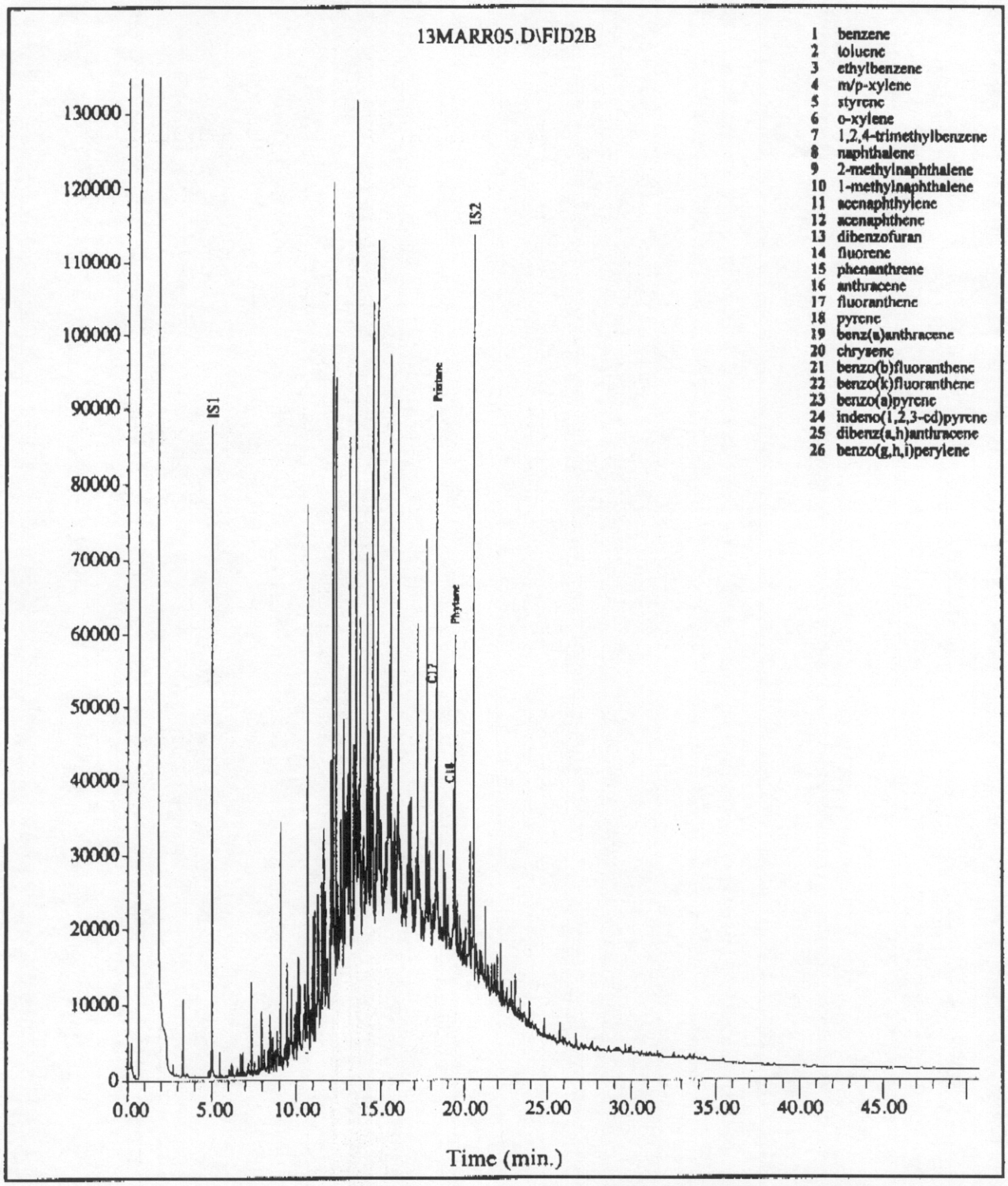


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**Water/NAPL**
Laboratory ID:	IG010301-01
Method:	MET4007D

META

GC/FID Fingerprint

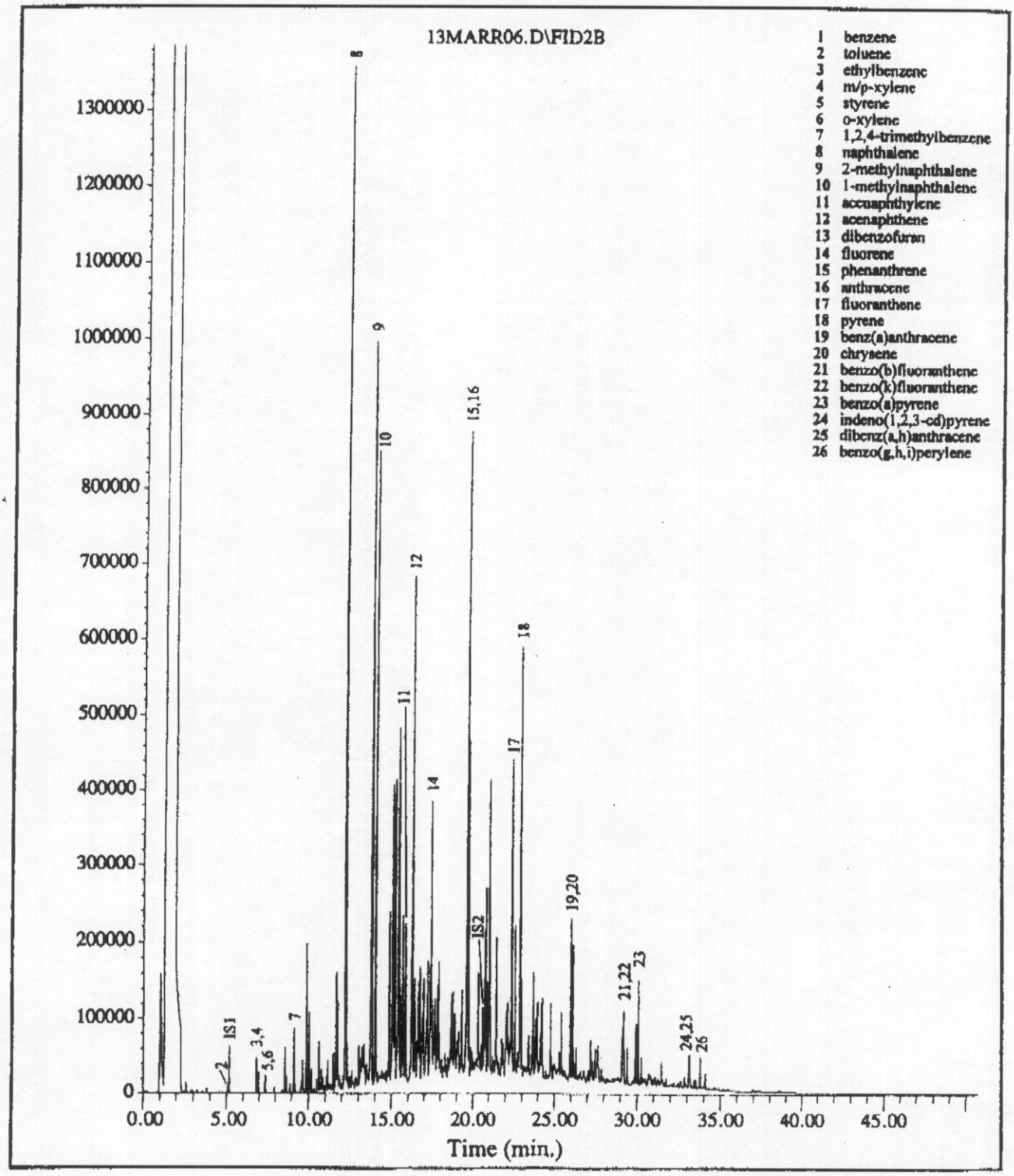


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**Water/NAPL**
Laboratory ID:	IG010301-01PF
Method:	MET4007D -

META

GC/FID Fingerprint

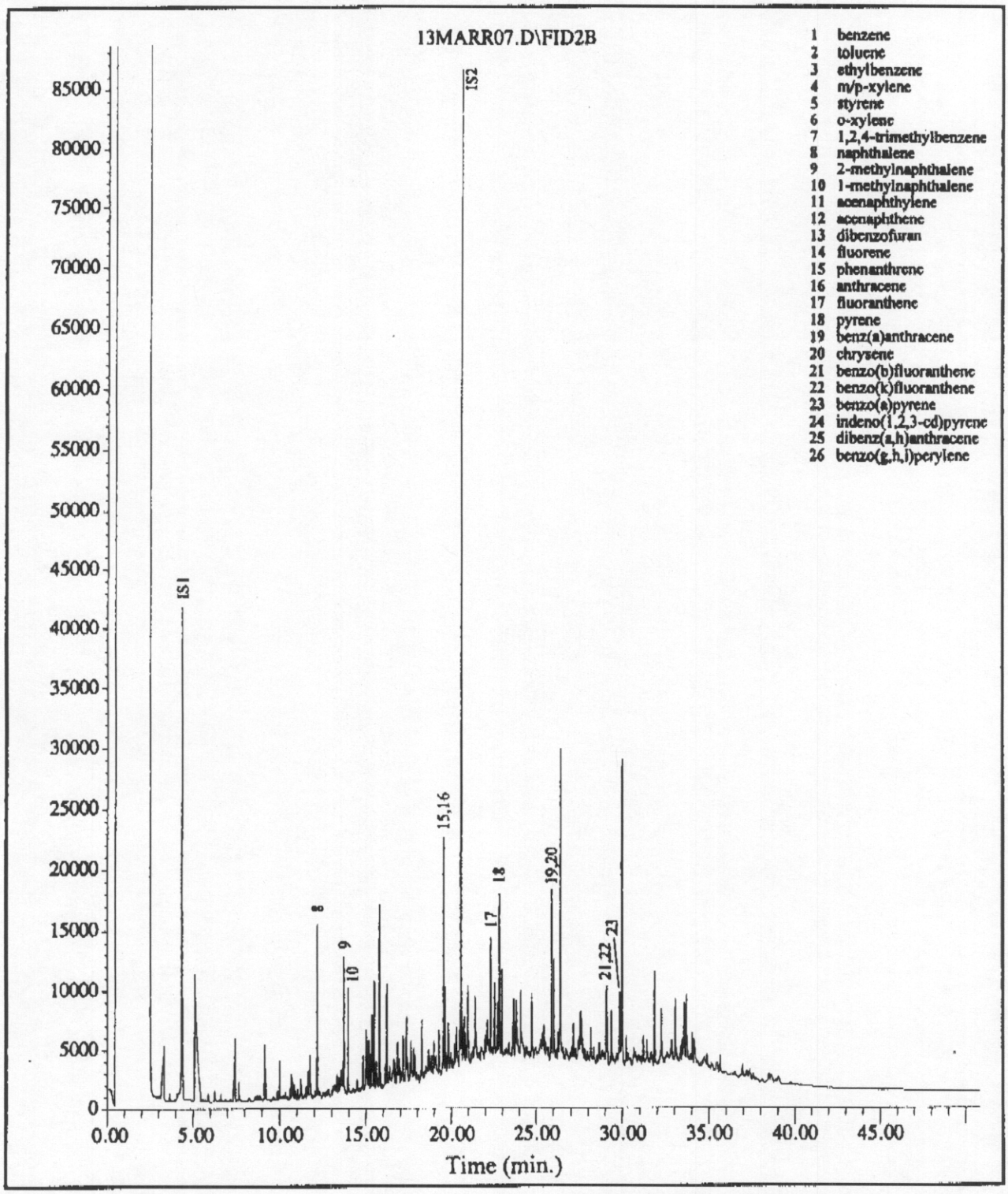


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**Water/NAPL**
Laboratory ID:	IG010301-01DF
Method:	MET4007D

META

GC/FID Fingerprint

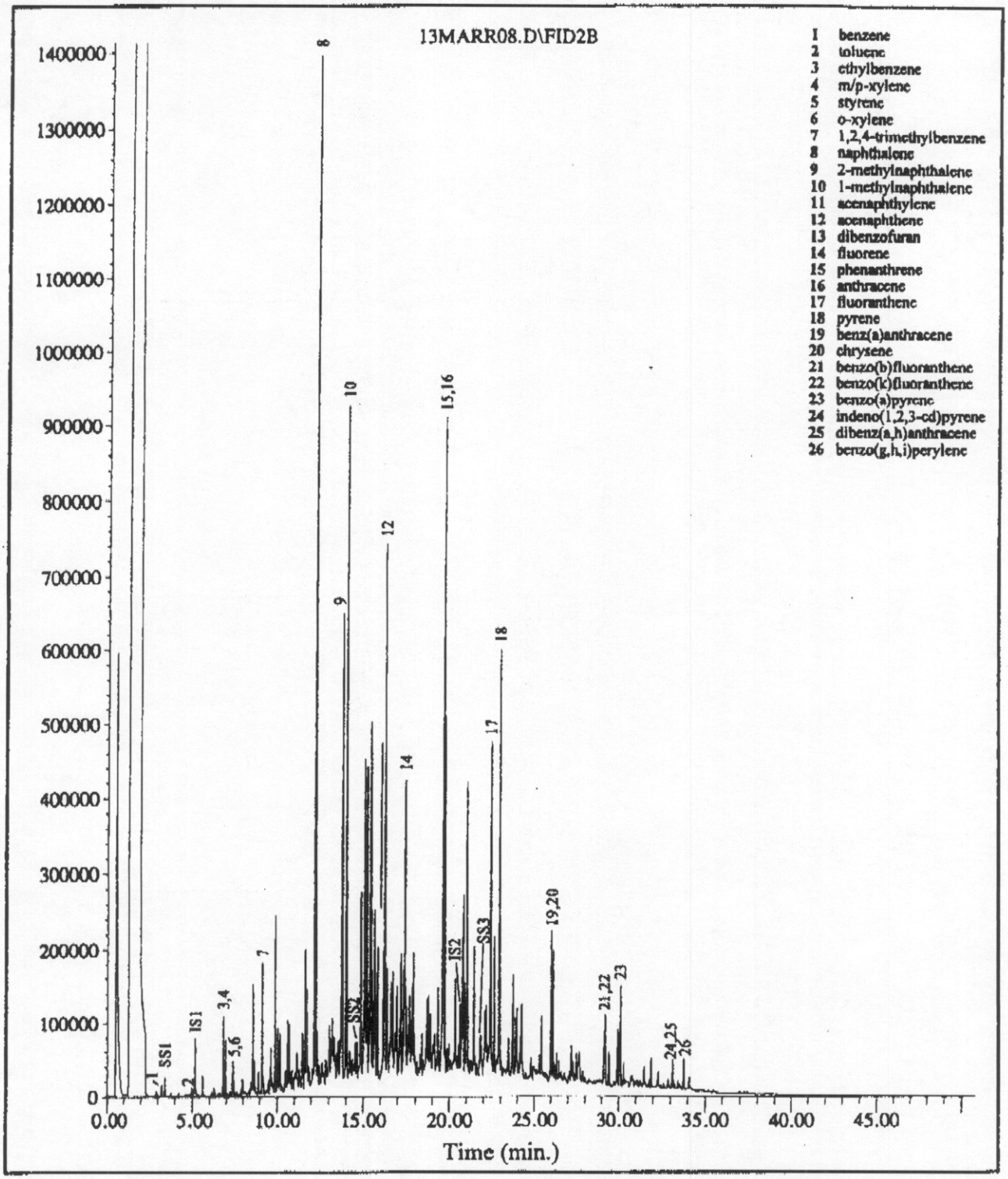


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**Water/NAPL**
Laboratory ID:	IG010301-01MF
Method:	MET4007D

META

GC/FID Fingerprint

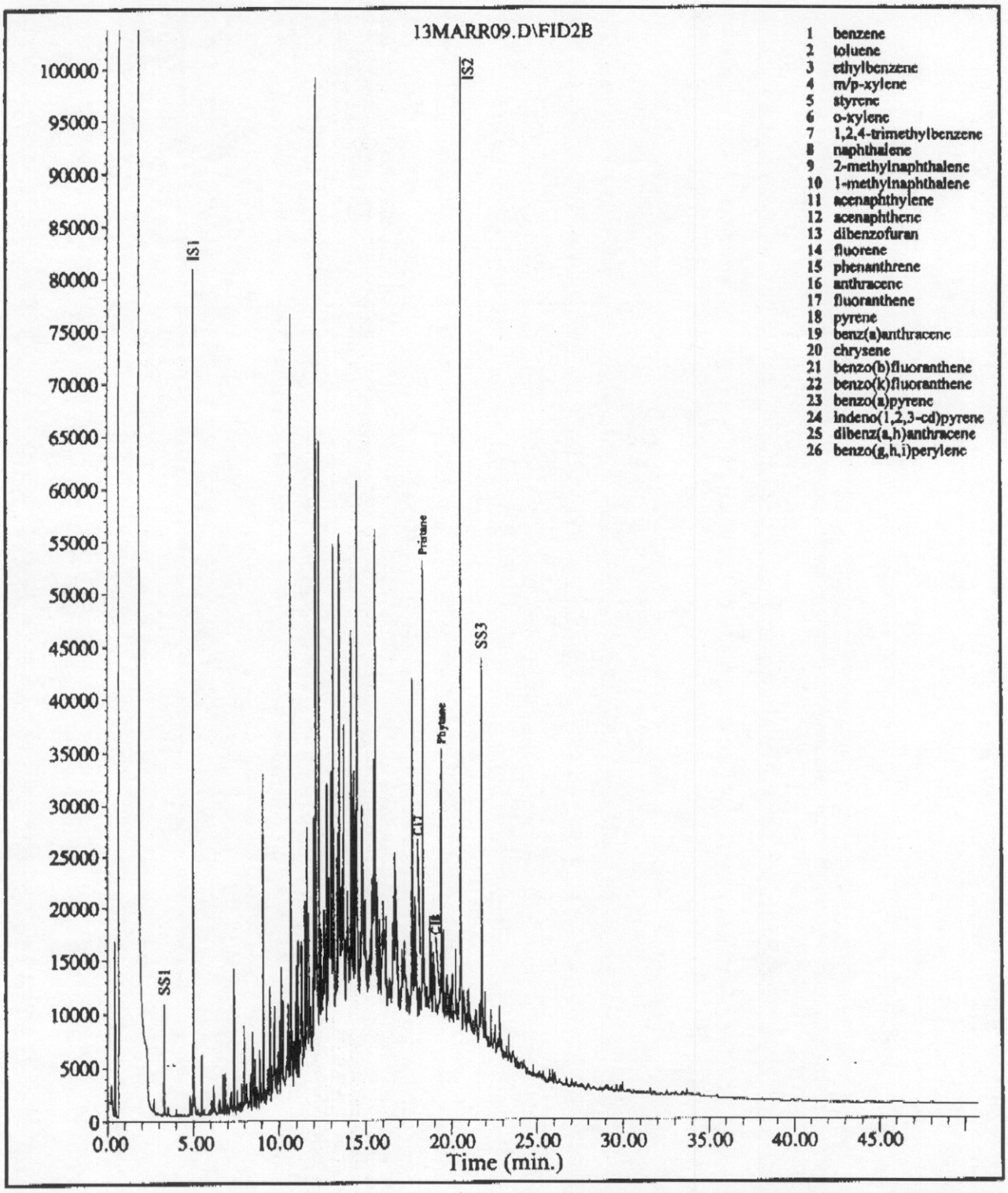


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**12" Clay Pipe**
Laboratory ID:	IG010301-02
Method:	MET4007D

META

GC/FID Fingerprint

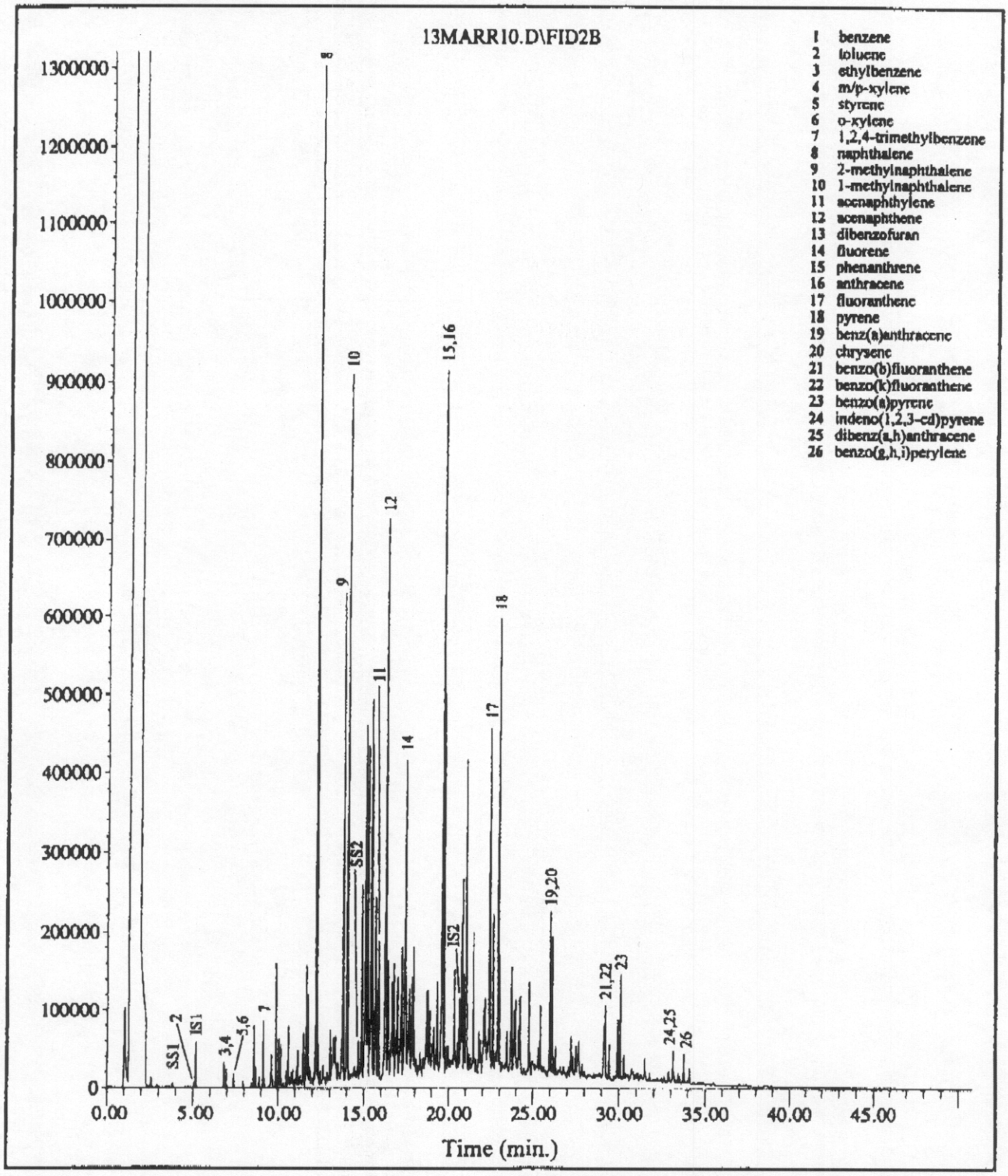


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**12" Clay Pipe**
Laboratory ID:	IG010301-02PF
Method:	MET4007D -

META

GC/FID Fingerprint

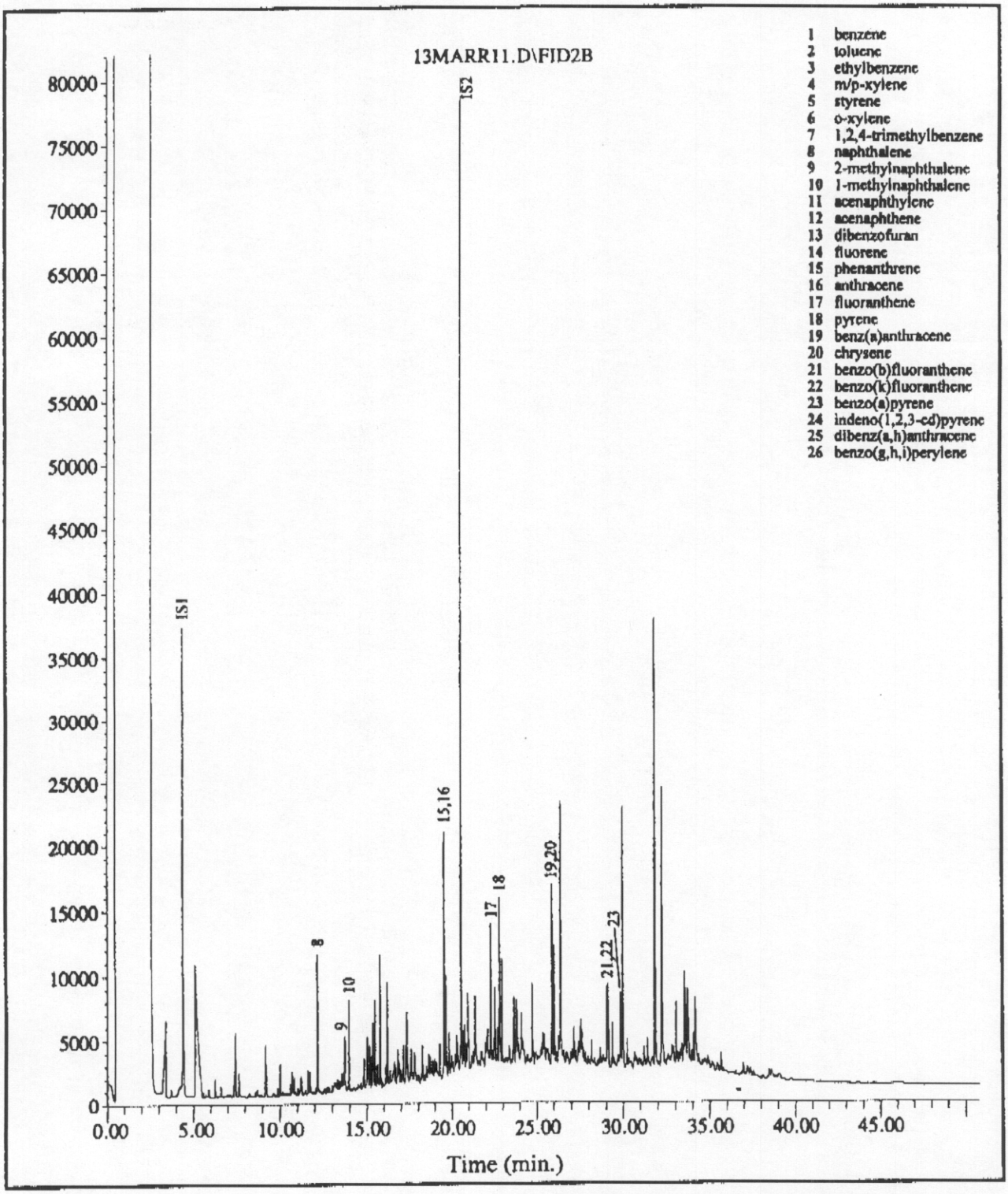


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**12" Clay Pipe**
Laboratory ID:	IG010301-02DF
Method:	MET4007D

META

GC/FID Fingerprint



IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**12" Clay Pipe**
Laboratory ID:	IG010301-02MF
Method:	MET4007D

META

Appendix C

Chemical Concentrations

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Water/NAPL

Client:	GTI	Preparation Method:	Solvent Ext (EPA3510 mod.)
Project:	Ashland	Cleanup Method(s):	
Lab ID:	IG010301-01	Analysis Method:	GC/FID (EPA 8100 Mod.)
File ID:	13MARR04.D	Matrix:	Water
		Preservation:	None
Date Sampled:	2/20/01	Decanted:	No
Date Received:	3/1/01	Sample Size:	1000 g
Date Prepared:	3/1/01	%Solid:	100%
Date Cleanup:		Extract Volume:	25 mL
Date Analyzed:	3/13/01	Prep DF:	1
Instrument:	GC_3	Analysis DF:	1
Operator:	DRC	Injection Volume:	0.001 mL
		Batch QC:	IG010301-AB

Analyte:	Concentration mg/kg	Q	RL mg/kg	DL mg/kg	Comments
TARGET COMPOUNDS:					
Benzene	774		2.08	1.04	
Toluene	191	B	2.08	1.04	
Ethylbenzene	1,440		2.08	1.04	
m/p-Xylene	910		2.08	1.04	
Styrene	258		2.08	1.04	
o-Xylene	935		2.08	1.04	
Isopropyltoluene	223		2.08	1.04	
Propylbenzene	112		2.08	1.04	
1,3,5-Trimethylbenzene	522		2.08	1.04	
1,2,4-Trimethylbenzene	963		2.08	1.04	
sec-Butylbenzene	69.5		2.08	1.04	
p-Isopropyltoluene	759		2.08	1.04	
n-Butylbenzene		U	2.08	1.04	
Naphthalene	31,000	D	2.08	1.04	
2-Methylnaphthalene	18,700	D	2.08	1.04	
1-Methylnaphthalene	15,100	D	2.08	1.04	
Acenaphthylene	3,820		2.08	1.04	
Acenaphthene	10,500	D	2.08	1.04	
Dibenzofuran	2,520		2.08	1.04	
Fluorene	6,150		2.08	1.04	
Phenanthrene	19,100	D	2.08	1.04	
Anthracene	5,940		2.08	1.04	
Fluoranthene	6,970		2.08	1.04	
Pyrene	11,100	D	2.08	1.04	
Benz(a)anthracene	4,580		2.08	1.04	
Chrysene	3,360		2.08	1.04	
Benzo(b)fluoranthene	1,550		2.08	1.04	
Benzo(k)fluoranthene	1,820		2.08	1.04	
Benzo(a)pyrene	3,260		2.08	1.04	
Indeno(123-cd)pyrene	779		2.08	1.04	
Dibenz(a,h)anthracene	163		2.08	1.04	
Benzo(g,h,i)perylene	708		2.08	1.04	
Total MAH	4,510				
Total PAH	145,000				

Calculations based on residue weight (0.12%)

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	35%	50%	150%
2-Fluorobiphenyl (SS2)	I	50%	120%
5-alpha-Androstane (SS3)	76%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Total MAH does not include C3- or C4-benzenes

Total PAH does not include Dibenzofuran

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **Water/NAPL**

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3510 mod.)	
Project:	Ashland	Cleanup Method(s):	Silica Gel (EPA 3630 mod.)	
Lab ID:	IG010301-01PF	Analysis Method:	GC/FID (EPA 8100 Mod.)	
File ID:	13MARR05.D	Matrix:	Water	
		Preservation:	None	
Date Sampled:	2/20/01	Decanted:	No	
Date Received:	3/1/01	Sample Size:	1000	g
Date Prepared:	3/1/01	%Solid:	100%	
Date Cleanup:	3/13/01	Extract Volume:	25	mL
Date Analyzed:	3/13/01	Prep DF:	1	
Instrument:	GC_3	Analysis DF:	1	
Operator:	DRC	Injection Volume:	0.001	mL
		Batch QC:	IG010301-AB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	DL mg/kg	Comments
TARGET COMPOUNDS:					
Benzene	3.51		2.08	1.04	
Toluene	9.28	B	2.08	1.04	
Ethylbenzene		U	2.08	1.04	
m/p-Xylene		U	2.08	1.04	
Styrene		U	2.08	1.04	
o-Xylene		U	2.08	1.04	
Isopropyltoluene		U	2.08	1.04	
Propylbenzene		U	2.08	1.04	
1,3,5-Trimethylbenzene		U	2.08	1.04	
1,2,4-Trimethylbenzene		U	2.08	1.04	
sec-Butylbenzene		U	2.08	1.04	
p-Isopropyltoluene		U	2.08	1.04	
n-Butylbenzene		U	2.08	1.04	
Naphthalene		U	2.08	1.04	
2-Methylnaphthalene		U	2.08	1.04	
1-Methylnaphthalene		U	2.08	1.04	
Acenaphthylene		U	2.08	1.04	
Acenaphthene		U	2.08	1.04	
Dibenzofuran		U	2.08	1.04	
Fluorene		U	2.08	1.04	
Phenanthrene		U	2.08	1.04	
Anthracene		U	2.08	1.04	
Fluoranthene		U	2.08	1.04	
Pyrene		U	2.08	1.04	
Benz(a)anthracene		U	2.08	1.04	
Chrysene		U	2.08	1.04	
Benzo(b)fluoranthene		U	2.08	1.04	
Benzo(k)fluoranthene		U	2.08	1.04	
Benzo(a)pyrene		U	2.08	1.04	
Indeno(123-cd)pyrene		U	2.08	1.04	
Dibenz(a,h)anthracene		U	2.08	1.04	
Benzo(g,h,i)perylene		U	2.08	1.04	
	Calculations based on residue weight (0.12%)				
Surrogates	%R		Min	Max	
Fluorobenzene (SS1)	1%		50%	150%	
2-Fluorobiphenyl (SS2)	0%		50%	120%	
5-alpha-Androstane (SS3)	72%		50%	120%	

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **Water/NAPL**

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3510 mod.)	
Project:	Ashland	Cleanup Method(s):	Silica Gel (EPA 3630 mod.)	
Lab ID:	IG010301-01DF	Analysis Method:	GC/FID (EPA 8100 Mod.)	
File ID:	13MARR06.D	Matrix:	Water	
		Preservation:	None	
Date Sampled:	2/20/01	Decanted:	No	
Date Received:	3/1/01	Sample Size:	1000	g
Date Prepared:	3/1/01	%Solid:	100%	
Date Cleanup:	3/13/01	Extract Volume:	25	mL
Date Analyzed:	3/13/01	Prep DF:	1	
Instrument:	GC_3	Analysis DF:	1	
Operator:	DRC	Injection Volume:	0.001	mL
		Batch QC:	IG010301-AB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	DL mg/kg	Comments
TARGET COMPOUNDS:					
Benzene	78.2		2.08	1.04	
Toluene	150	B	2.08	1.04	
Ethylbenzene	586		2.08	1.04	
m/p-Xylene	382		2.08	1.04	
Styrene	163		2.08	1.04	
o-Xylene	358		2.08	1.04	
Isopropyltoluene	109		2.08	1.04	
Propylbenzene	79.0		2.08	1.04	
1,3,5-Trimethylbenzene	321		2.08	1.04	
1,2,4-Trimethylbenzene	591		2.08	1.04	
sec-Butylbenzene	23.5		2.08	1.04	
p-Isopropyltoluene	583		2.08	1.04	
n-Butylbenzene	307		2.08	1.04	
Naphthalene	26,300	D	2.08	1.04	
2-Methylnaphthalene	18,200	D	2.08	1.04	
1-Methylnaphthalene	14,000	D	2.08	1.04	
Acenaphthylene	2,180		2.08	1.04	
Acenaphthene	10,300	D	2.08	1.04	
Dibenzofuran	1,970		2.08	1.04	
Fluorene	4,350		2.08	1.04	
Phenanthrene	18,500	D	2.08	1.04	
Anthracene	4,310		2.08	1.04	
Fluoranthene	5,620		2.08	1.04	
Pyrene	10,800	D	2.08	1.04	
Benz(a)anthracene	3,310		2.08	1.04	
Chrysene	2,500		2.08	1.04	
Benzo(b)fluoranthene	1,250		2.08	1.04	
Benzo(k)fluoranthene	1,380		2.08	1.04	
Benzo(a)pyrene	2,440		2.08	1.04	
Indeno(123-cd)pyrene	705		2.08	1.04	
Dibenz(a,h)anthracene	143		2.08	1.04	
Benzo(g,h,i)perylene	622		2.08	1.04	

Calculations based on residue weight (0.12%)

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	5%	50%	150%
2-Fluorobiphenyl (SS2)	I	50%	120%
5-alpha-Androstane (SS3)	0%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Water/NAPL

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3510 mod.)
Project:	Ashland	Cleanup Method(s):	
Lab ID:	IG010301-01MF	Analysis Method:	GC/FID (EPA 8100 Mod.)
File ID:	13MARR07.D	Matrix:	Water
		Preservation:	None
Date Sampled:	2/20/01	Decanted:	No
Date Received:	3/1/01	Sample Size:	1000 g
Date Prepared:	3/1/01	%Solid:	100%
Date Cleanup:		Extract Volume:	25 mL
Date Analyzed:	13 Mar 2001 9:29 pm	Prep DF:	1
Instrument:	GC_3	Analysis DF:	1
Operator:	DRC	Injection Volume:	0.001 mL
		Batch QC:	IG010301-AB

Analyte:	Concentration mg/kg	Q	RL mg/kg	DL mg/kg	Comments
TARGET COMPOUNDS:					
Benzene		U	2.08	1.04	
Toluene		B	2.08	1.04	
Ethylbenzene		U	2.08	1.04	
m/p-Xylene	5.97		2.08	1.04	
Styrene		U	2.08	1.04	
o-Xylene		U	2.08	1.04	
Isopropyltoluene		U	2.08	1.04	
Propylbenzene		U	2.08	1.04	
1,3,5-Trimethylbenzene		U	2.08	1.04	
1,2,4-Trimethylbenzene		U	2.08	1.04	
sec-Butylbenzene		U	2.08	1.04	
p-Isopropyltoluene		U	2.08	1.04	
n-Butylbenzene		U	2.08	1.04	
Naphthalene	171		2.08	1.04	
2-Methylnaphthalene	135		2.08	1.04	
1-Methylnaphthalene	123		2.08	1.04	
Acenaphthylene	189		2.08	1.04	
Acenaphthene	112		2.08	1.04	
Dibenzofuran	28.1		2.08	1.04	
Fluorene	58.8		2.08	1.04	
Phenanthrene	269		2.08	1.04	
Anthracene	91.1		2.08	1.04	
Fluoranthene	121		2.08	1.04	
Pyrene	186		2.08	1.04	
Benz(a)anthracene	227		2.08	1.04	
Chrysene	134		2.08	1.04	
Benzo(b)fluoranthene	97.5		2.08	1.04	
Benzo(k)fluoranthene	104		2.08	1.04	
Benzo(a)pyrene	401		2.08	1.04	
Indeno(123-cd)pyrene	91.2		2.08	1.04	
Dibenz(a,h)anthracene	19.5		2.08	1.04	
Benzo(g,h,i)perylene	128		2.08	1.04	

Calculations based on residue weight (0.12%)

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	0%	50%	150%
2-Fluorobiphenyl (SS2)	0%	50%	120%
5-alpha-Androstane (SS3)	0%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **12" Clay Pipe**

Client:	GTI
Project:	Ashland
Lab ID:	IG010301-02
File ID:	13MARR08.D
Date Sampled:	2/21/01
Date Received:	3/1/01
Date Prepared:	3/2/01
Date Cleanup:	
Date Analyzed:	13 Mar 2001 10:33 pm
Instrument:	GC_3
Operator:	DRC

Preparation Method:	Solvent Ext. (EPA3570 Draft)	
Cleanup Method(s):		
Analysis Method:	GC/FID (EPA 8100 Mod.)	
Matrix:	Soil	
Preservation:	None	
Decanted:	No	
Sample Size:	2.038	g
%Solid:	59%	
Extract Volume:	2	mL
Prep DF:	1	
Analysis DF:	1	
Injection Volume:	0.001	mL
Batch QC:	IG010302-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	DL mg/kg	Comments
TARGET COMPOUNDS:					
Benzene	14.6		0.17	0.08	
Toluene	6.71		0.17	0.08	
Ethylbenzene	106		0.17	0.08	
m/p-Xylene	80.9		0.17	0.08	
Styrene	22.7		0.17	0.08	
o-Xylene	41.7		0.17	0.08	
Isopropyltoluene	22.7		0.17	0.08	
Propylbenzene	11.1		0.17	0.08	
1,3,5-Trimethylbenzene	53.4		0.17	0.08	
1,2,4-Trimethylbenzene	91.8		0.17	0.08	
sec-Butylbenzene	4.04		0.17	0.08	
p-Isopropyltoluene	86.4		0.17	0.08	
n-Butylbenzene	141		0.17	0.08	
Naphthalene	1,840	D	0.17	0.08	
2-Methylnaphthalene	581	D	0.17	0.08	
1-Methylnaphthalene	1,030	D	0.17	0.08	
Acenaphthylene	156		0.17	0.08	
Acenaphthene	795	D	0.17	0.08	
Dibenzofuran	217		0.17	0.08	
Fluorene	550		0.17	0.08	
Phenanthrene	1,300	D	0.17	0.08	
Anthracene	537		0.17	0.08	
Fluoranthene	457		0.17	0.08	
Pyrene	713	D	0.17	0.08	
Benz(a)anthracene	389		0.17	0.08	
Chrysene	305		0.17	0.08	
Benzo(b)fluoranthene	130		0.17	0.08	
Benzo(k)fluoranthene	155		0.17	0.08	
Benzo(a)pyrene	272		0.17	0.08	
Indeno(123-cd)pyrene	87.3		0.17	0.08	
Dibenz(a,h)anthracene	14.1		0.17	0.08	
Benzo(g,h,i)perylene	69.6		0.17	0.08	
Total MAH	272				
Total PAH	9,360				

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	71%	50%	150%
2-Fluorobiphenyl (SS2)	113%	50%	120%
5-alpha-Androstane (SS3)	123%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Total MAH does not include C3- or C4-benzenes
Total PAH does not include Dibenzofuran

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: 12" Clay Pipe

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)	
Project:	Ashland	Cleanup Method(s):		
Lab ID:	IG010301-02PF	Analysis Method:	GC/FID (EPA 8100 Mod.)	
File ID:	13MARR09.D	Matrix:	Water	
		Preservation:	None	
Date Sampled:	2/21/01	Decanted:	No	
Date Received:	3/1/01	Sample Size:	2.038	g
Date Prepared:	3/1/01	%Solid:	59%	
Date Cleanup:		Extract Volume:	2	mL
Date Analyzed:	13 Mar 2001 11:37 pm	Prep DF:	1	
Instrument:	GC_3	Analysis DF:	1	
Operator:	DRC	Injection Volume:	0.001	mL
		Batch QC:	Soil Blank	

Analyte:	Concentration mg/L	Q	RL mg/L	DL mg/L	Comments
TARGET COMPOUNDS:					
Benzene	0.11	J	0.17	0.08	
Toluene		U	0.17	0.08	
Ethylbenzene		U	0.17	0.08	
m/p-Xylene		U	0.17	0.08	
Styrene		U	0.17	0.08	
o-Xylene		U	0.17	0.08	
Isopropyltoluene		U	0.17	0.08	
Propylbenzene		U	0.17	0.08	
1,3,5-Trimethylbenzene		U	0.17	0.08	
1,2,4-Trimethylbenzene		U	0.17	0.08	
sec-Butylbenzene		U	0.17	0.08	
p-Isopropyltoluene		U	0.17	0.08	
n-Butylbenzene		U	0.17	0.08	
Naphthalene		U	0.17	0.08	
2-Methylnaphthalene		U	0.17	0.08	
1-Methylnaphthalene		U	0.17	0.08	
Acenaphthylene		U	0.17	0.08	
Acenaphthene		U	0.17	0.08	
Dibenzofuran		U	0.17	0.08	
Fluorene		U	0.17	0.08	
Phenanthrene		U	0.17	0.08	
Anthracene		U	0.17	0.08	
Fluoranthene		U	0.17	0.08	
Pyrene		U	0.17	0.08	
Benz(a)anthracene		U	0.17	0.08	
Chrysene		U	0.17	0.08	
Benzo(b)fluoranthene		U	0.17	0.08	
Benzo(k)fluoranthene		U	0.17	0.08	
Benzo(a)pyrene		U	0.17	0.08	
Indeno(123-cd)pyrene		U	0.17	0.08	
Dibenz(a,h)anthracene		U	0.17	0.08	
Benzo(g,h,i)perylene		U	0.17	0.08	

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	30%	50%	150%
2-Fluorobiphenyl (SS2)	0%	50%	120%
5-alpha-Androstane (SS3)	66%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **12" Clay Pipe**

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)	
Project:	Ashland	Cleanup Method(s):		
Lab ID:	IG010301-02DF	Analysis Method:	GC/FID (EPA 8100 Mod.)	
File ID:	13MARR10.D	Matrix:	Water	
		Preservation:	None	
Date Sampled:	2/21/01	Decanted:	No	
Date Received:	3/1/01	Sample Size:	2.038	g
Date Prepared:	3/1/01	%Solid:	59%	
Date Cleanup:		Extract Volume:	2	mL
Date Analyzed:	14 Mar 2001 12:42 am	Prep DF:	1	
Instrument:	GC_3	Analysis DF:	1	
Operator:	DRC	Injection Volume:	0.001	mL
		Batch QC:	Soil Blank	

Analyte:	Concentration mg/L	Q	RL mg/L	DL mg/L	Comments
TARGET COMPOUNDS:					
Benzene	1.38		0.17	0.08	
Toluene	8.55		0.17	0.08	
Ethylbenzene	32.7		0.17	0.08	
m/p-Xylene	25.7		0.17	0.08	
Styrene	14.5		0.17	0.08	
o-Xylene	20.3		0.17	0.08	
Isopropyltoluene	8.68		0.17	0.08	
Propylbenzene	5.83		0.17	0.08	
1,3,5-Trimethylbenzene	27.0		0.17	0.08	
1,2,4-Trimethylbenzene	44.5		0.17	0.08	
sec-Butylbenzene	1.32		0.17	0.08	
p-Isopropyltoluene	42.7		0.17	0.08	
n-Butylbenzene	24.9		0.17	0.08	
Naphthalene	2,060	D	0.17	0.08	
2-Methylnaphthalene	662		0.17	0.08	
1-Methylnaphthalene	1,260	D	0.17	0.08	
Acenaphthylene	94.1		0.17	0.08	
Acenaphthene	1,020	D	0.17	0.08	
Dibenzofuran	156		0.17	0.08	
Fluorene	361		0.17	0.08	
Phenanthrene	1,680	D	0.17	0.08	
Anthracene	387		0.17	0.08	
Fluoranthene	477		0.17	0.08	
Pyrene	916	D	0.17	0.08	
Benz(a)anthracene	275		0.17	0.08	
Chrysene	208		0.17	0.08	
Benzo(b)fluoranthene	95.6		0.17	0.08	
Benzo(k)fluoranthene	109		0.17	0.08	
Benzo(a)pyrene	183		0.17	0.08	
Indeno(123-cd)pyrene	52.2		0.17	0.08	
Dibenz(a,h)anthracene	10.3		0.17	0.08	
Benzo(g,h,i)perylene	45.0		0.17	0.08	

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	5%	50%	150%
2-Fluorobiphenyl (SS2)	81%	50%	120%
5-alpha-Androstane (SS3)	0%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **12" Clay Pipe**

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)	
Project:	Ashland	Cleanup Method(s):		
Lab ID:	IG010301-02MF	Analysis Method:	GC/FID (EPA 8100 Mod.)	
File ID:	13MARR11.D	Matrix:	Water	
		Preservation:	None	
Date Sampled:	2/21/01	Decanted:	No	
Date Received:	3/1/01	Sample Size:	2.038	g
Date Prepared:	3/1/01	%Solid:	59%	
Date Cleanup:		Extract Volume:	2	mL
Date Analyzed:	14 Mar 2001 1:46 am	Prep DF:	1	
Instrument:	GC_3	Analysis DF:	1	
Operator:	DRC	Injection Volume:	0.001	mL
		Batch QC:	Soil Blank	

Analyte:	Concentration mg/L	Q	RL mg/L	DL mg/L	Comments
TARGET COMPOUNDS:					
Benzene		U	0.17	0.08	
Toluene		U	0.17	0.08	
Ethylbenzene		U	0.17	0.08	
m/p-Xylene		U	0.17	0.08	
Styrene		U	0.17	0.08	
o-Xylene		U	0.17	0.08	
Isopropyltoluene		U	0.17	0.08	
Propylbenzene		U	0.17	0.08	
1,3,5-Trimethylbenzene		U	0.17	0.08	
1,2,4-Trimethylbenzene		U	0.17	0.08	
sec-Butylbenzene		U	0.17	0.08	
p-Isopropyltoluene		U	0.17	0.08	
n-Butylbenzene		U	0.17	0.08	
Naphthalene	11.6		0.17	0.08	
2-Methylnaphthalene	4.35		0.17	0.08	
1-Methylnaphthalene	9.11		0.17	0.08	
Acenaphthylene	10.6		0.17	0.08	
Acenaphthene	9.06		0.17	0.08	
Dibenzofuran	0.75		0.17	0.08	
Fluorene	4.69		0.17	0.08	
Phenanthrene	23.0		0.17	0.08	
Anthracene	9.48		0.17	0.08	
Fluoranthene	10.9		0.17	0.08	
Pyrene	14.5		0.17	0.08	
Benz(a)anthracene	16.9		0.17	0.08	
Chrysene	12.9		0.17	0.08	
Benzo(b)fluoranthene	7.53		0.17	0.08	
Benzo(k)fluoranthene	9.25		0.17	0.08	
Benzo(a)pyrene	26.3		0.17	0.08	
Indeno(123-cd)pyrene	6.31		0.17	0.08	
Dibenz(a,h)anthracene	1.10		0.17	0.08	
Benzo(g,h,i)perylene	10.3		0.17	0.08	

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	0%	50%	150%
2-Fluorobiphenyl (SS2)	2%	50%	120%
5-alpha-Androstane (SS3)	0%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **12" Clay Pipe**

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)	
Project:	Ashland	Cleanup Method(s):		
		Analysis Method:	GC/FID (EPA 8100 Mod.)	
Lab ID:	IG010301-02Dup	Matrix:	Soil	
File ID:	13MARR12.D	Preservation:	None	
		Decanted:	No	
		Sample Size:	1.875	g
Date Sampled:	2/21/01	%Solid:	59%	
Date Received:	3/1/01	Extract Volume:	2	mL
Date Prepared:	3/2/01	Prep DF:	1	
Date Cleanup:		Analysis DF:	1	
Date Analyzed:	14 Mar 2001 2:52 am	Injection Volume:	0.001	mL
Instrument:	GC_3			
Operator:	DRC	Batch QC:	IG010302-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	DL mg/kg	Comments
TARGET COMPOUNDS:					
Benzene	12.7		0.18	0.09	13.9%
Toluene	7.25		0.18	0.09	7.7%
Ethylbenzene	87.3		0.18	0.09	19.3%
m/p-Xylene	66.5		0.18	0.09	19.5%
Styrene	17.8		0.18	0.09	24.2%
o-Xylene	34.6		0.18	0.09	18.6%
Isopropyltoluene	18.6		0.18	0.09	19.9%
Propylbenzene	9.01		0.18	0.09	20.8%
1,3,5-Trimethylbenzene	44.1		0.18	0.09	19.1%
1,2,4-Trimethylbenzene	76.5		0.18	0.09	18.2%
sec-Butylbenzene	3.47		0.18	0.09	15.2%
p-Isopropyltoluene	54.9		0.18	0.09	19.0%
n-Butylbenzene	119		0.18	0.09	18.9%
Naphthalene	1,860	D	0.18	0.09	1.1%
2-Methylnaphthalene	556	D	0.18	0.09	4.4%
1-Methylnaphthalene	1,060	D	0.18	0.09	2.9%
Acenaphthylene	140		0.18	0.09	10.8%
Acenaphthene	820	D	0.18	0.09	3.1%
Dibenzofuran	202		0.18	0.09	7.2%
Fluorene	445		0.18	0.09	21.1%
Phenanthrene	1,330	D	0.18	0.09	2.3%
Anthracene	442		0.18	0.09	19.4%
Fluoranthene	464	D	0.18	0.09	1.5%
Pyrene	722	D	0.18	0.09	1.3%
Benz(a)anthracene	327		0.18	0.09	17.3%
Chrysene	255		0.18	0.09	17.9%
Benzo(b)fluoranthene	116		0.18	0.09	11.4%
Benzo(k)fluoranthene	135		0.18	0.09	13.8%
Benzo(a)pyrene	226		0.18	0.09	18.5%
Indeno(123-cd)pyrene	55.9		0.18	0.09	18.5%
Dibenz(a,h)anthracene	11.5		0.18	0.09	20.3%
Benzo(g,h,i)perylene	58.9		0.18	0.09	16.7%
Total MAH	226				
Total PAH	9,030				

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	57%	50%	150%
2-Fluorobiphenyl (SS2)	95%	50%	120%
5-alpha-Androstane (SS3)	106%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Total MAH does not include C3- or C4-benzenes

Total PAH does not include Dibenzofuran

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **12" Clay Pipe**

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)		
Project:	Ashland	Cleanup Method(s):			
Lab ID:	IG010301-02DupPF	Analysis Method:	GC/FID (EPA 8100 Mod.)		
File ID:	13MARR13.D	Matrix:	Water		
		Preservation:	None		
Date Sampled:	2/21/01	Decanted:	No		
Date Received:	3/1/01	Sample Size:	1.875	g	
Date Prepared:	3/1/01	%Solid:	59%		
Date Cleanup:		Extract Volume:	2	mL	
Date Analyzed:	14 Mar 2001 3:56 am	Prep DF:	1		
Instrument:	GC_3	Analysis DF:	1		
Operator:	DRC	Injection Volume:	0.001	mL	
		Batch QC:	Soil Blank		

Analyte:	Concentration mg/L	Q	RL mg/L	DL mg/L	Comments
TARGET COMPOUNDS:					
Benzene	0.24		0.18	0.09	
Toluene	0.88		0.18	0.09	
Ethylbenzene		U	0.18	0.09	
m/p-Xylene		U	0.18	0.09	
Styrene		U	0.18	0.09	
o-Xylene		U	0.18	0.09	
Isopropyltoluene		U	0.18	0.09	
Propylbenzene		U	0.18	0.09	
1,3,5-Trimethylbenzene		U	0.18	0.09	
1,2,4-Trimethylbenzene		U	0.18	0.09	
sec-Butylbenzene		U	0.18	0.09	
p-Isopropyltoluene		U	0.18	0.09	
n-Butylbenzene		U	0.18	0.09	
Naphthalene		U	0.18	0.09	
2-Methylnaphthalene		U	0.18	0.09	
1-Methylnaphthalene		U	0.18	0.09	
Acenaphthylene		U	0.18	0.09	
Acenaphthene		U	0.18	0.09	
Dibenzofuran		U	0.18	0.09	
Fluorene		U	0.18	0.09	
Phenanthrene		U	0.18	0.09	
Anthracene		U	0.18	0.09	
Fluoranthene		U	0.18	0.09	
Pyrene		U	0.18	0.09	
Benz(a)anthracene		U	0.18	0.09	
Chrysene		U	0.18	0.09	
Benzo(b)fluoranthene		U	0.18	0.09	
Benzo(k)fluoranthene		U	0.18	0.09	
Benzo(a)pyrene		U	0.18	0.09	
Indeno(123-cd)pyrene		U	0.18	0.09	
Dibenz(a,h)anthracene		U	0.18	0.09	
Benzo(g,h,i)perylene		U	0.18	0.09	

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	28%	50%	150%
2-Fluorobiphenyl (SS2)	0%	50%	120%
5-alpha-Androstane (SS3)	58%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: 12" Clay Pipe

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)
Project:	Ashland	Cleanup Method(s):	
Lab ID:	IG010301-02DupDF	Analysis Method:	GC/FID (EPA 8100 Mod.)
File ID:	13MARR14.D	Matrix:	Water
		Preservation:	None
Date Sampled:	2/21/01	Decanted:	No
Date Received:	3/1/01	Sample Size:	1.875 g
Date Prepared:	3/1/01	%Solid:	59%
Date Cleanup:		Extract Volume:	2 mL
Date Analyzed:	14 Mar 2001 5:00 am	Prep DF:	1
Instrument:	GC_3	Analysis DF:	1
Operator:	DRC	Injection Volume:	0.001 mL
		Batch QC:	Soil Blank

Analyte:	Concentration mg/L	Q	RL mg/L	DL mg/L	Comments
TARGET COMPOUNDS:					
Benzene		U	0.18	0.09	
Toluene	10.3		0.18	0.09	
Ethylbenzene	30.8		0.18	0.09	
m/p-Xylene	24.0		0.18	0.09	
Styrene	15.4		0.18	0.09	
o-Xylene	20.2		0.18	0.09	
Isopropyltoluene	8.33		0.18	0.09	
Propylbenzene	5.60		0.18	0.09	
1,3,5-Trimethylbenzene	26.8		0.18	0.09	
1,2,4-Trimethylbenzene	44.7		0.18	0.09	
sec-Butylbenzene		U	0.18	0.09	
p-Isopropyltoluene	43.2		0.18	0.09	
n-Butylbenzene	26.2		0.18	0.09	
Naphthalene	2,000	D	0.18	0.09	
2-Methylnaphthalene	640		0.18	0.09	
1-Methylnaphthalene	1,260	D	0.18	0.09	
Acenaphthylene	105		0.18	0.09	
Acenaphthene	1,010	D	0.18	0.09	
Dibenzofuran	172		0.18	0.09	
Fluorene	437		0.18	0.09	
Phenanthrene	1,640	D	0.18	0.09	
Anthracene	387		0.18	0.09	
Fluoranthene	486		0.18	0.09	
Pyrene	883	D	0.18	0.09	
Benz(a)anthracene	282		0.18	0.09	
Chrysene	214		0.18	0.09	
Benzo(b)fluoranthene	90.2		0.18	0.09	
Benzo(k)fluoranthene	104		0.18	0.09	
Benzo(a)pyrene	185		0.18	0.09	
Indeno(123-cd)pyrene	50.7		0.18	0.09	
Dibenz(a,h)anthracene	10.7		0.18	0.09	
Benzo(g,h,i)perylene	43.9		0.18	0.09	

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	5%	50%	150%
2-Fluorobiphenyl (SS2)	83%	50%	120%
5-alpha-Androstane (SS3)	0%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: 12" Clay Pipe

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)	
Project:	Ashland	Cleanup Method(s):		
Lab ID:	IG010301-02DupMF	Analysis Method:	GC/FID (EPA 8100 Mod.)	
File ID:	13MARR15.D	Matrix:	Water	
		Preservation:	None	
Date Sampled:	2/21/01	Decanted:	No	
Date Received:	3/1/01	Sample Size:	1.875	g
Date Prepared:	3/1/01	%Solid:	59%	
Date Cleanup:		Extract Volume:	2	mL
Date Analyzed:	14 Mar 2001 6:05 am	Prep DF:	1	
Instrument:	GC_3	Analysis DF:	1	
Operator:	DRC	Injection Volume:	0.001	mL
		Batch QC:	Soil Blank	

Analyte:	Concentration mg/L	Q	RL mg/L	DL mg/L	Comments
TARGET COMPOUNDS:					
Benzene		U	0.18	0.09	
Toluene		U	0.18	0.09	
Ethylbenzene		U	0.18	0.09	
m/p-Xylene		U	0.18	0.09	
Styrene		U	0.18	0.09	
o-Xylene		U	0.18	0.09	
Isopropyltoluene		U	0.18	0.09	
Propylbenzene		U	0.18	0.09	
1,3,5-Trimethylbenzene		U	0.18	0.09	
1,2,4-Trimethylbenzene		U	0.18	0.09	
sec-Butylbenzene		U	0.18	0.09	
p-Isopropyltoluene		U	0.18	0.09	
n-Butylbenzene		U	0.18	0.09	
Naphthalene	11.3		0.18	0.09	
2-Methylnaphthalene	6.26		0.18	0.09	
1-Methylnaphthalene	10.2		0.18	0.09	
Acenaphthylene	11.6		0.18	0.09	
Acenaphthene	12.3		0.18	0.09	
Dibenzofuran	1.57		0.18	0.09	
Fluorene	7.19		0.18	0.09	
Phenanthrene	25.6		0.18	0.09	
Anthracene	12.9		0.18	0.09	
Fluoranthene	14.9		0.18	0.09	
Pyrene	24.5		0.18	0.09	
Benz(a)anthracene	21.5		0.18	0.09	
Chrysene	9.17		0.18	0.09	
Benzo(b)fluoranthene	9.04		0.18	0.09	
Benzo(k)fluoranthene	9.83		0.18	0.09	
Benzo(a)pyrene	29.8		0.18	0.09	
Indeno(123-cd)pyrene	8.26		0.18	0.09	
Dibenz(a,h)anthracene	2.85		0.18	0.09	
Benzo(g,h,i)perylene	19.1		0.18	0.09	

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	0%	50%	150%
2-Fluorobiphenyl (SS2)	4%	50%	120%
5-alpha-Androstane (SS3)	0%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Aqueous Blank

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3510 mod.)		
Project:	Ashland	Cleanup Method(s):			
Lab ID:	IG010301-AB	Analysis Method:	GC/FID (EPA 8100 Mod.)		
File ID:	14MARR04.D	Matrix:	Water		
		Preservation:	None		
Date Sampled:		Decanted:	No		
Date Received:		Sample Size:	1000	g	
Date Prepared:	3/1/01	%Solid:	100%		
Date Cleanup:		Extract Volume:	25	mL	
Date Analyzed:	14 Mar 2001 4:45 pm	Prep DF:	1		
Instrument:	GC_3	Analysis DF:	1		
Operator:	DRC	Injection Volume:	0.001	mL	
		Batch QC:	IG010301-AB		

Analyte:	Concentration µg/L	Q	RL µg/L	DL µg/L	Comments
TARGET COMPOUNDS:					
Benzene		U	2.50	1.25	
Toluene	5.24		2.50	1.25	
Ethylbenzene		U	2.50	1.25	
m/p-Xylene		U	2.50	1.25	
Styrene		U	2.50	1.25	
o-Xylene		U	2.50	1.25	
Isopropyltoluene		U	2.50	1.25	
Propylbenzene		U	2.50	1.25	
1,3,5-Trimethylbenzene		U	2.50	1.25	
1,2,4-Trimethylbenzene		U	2.50	1.25	
sec-Butylbenzene		U	2.50	1.25	
p-Isopropyltoluene		U	2.50	1.25	
n-Butylbenzene		U	2.50	1.25	
Naphthalene		U	2.50	1.25	
2-Methylnaphthalene		U	2.50	1.25	
1-Methylnaphthalene		U	2.50	1.25	
Acenaphthylene		U	2.50	1.25	
Acenaphthene		U	2.50	1.25	
Dibenzofuran		U	2.50	1.25	
Fluorene		U	2.50	1.25	
Phenanthrene		U	2.50	1.25	
Anthracene		U	2.50	1.25	
Fluoranthene		U	2.50	1.25	
Pyrene		U	2.50	1.25	
Benz(a)anthracene		U	2.50	1.25	
Chrysene		U	2.50	1.25	
Benzo(b)fluoranthene		U	2.50	1.25	
Benzo(k)fluoranthene		U	2.50	1.25	
Benzo(a)pyrene		U	2.50	1.25	
Indeno(123-cd)pyrene		U	2.50	1.25	
Dibenz(a,h)anthracene		U	2.50	1.25	
Benzo(g,h,i)perylene		U	2.50	1.25	
Total MAH	5.24				
Total PAH					

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	55%	50%	150%
2-Fluorobiphenyl (SS2)	72%	50%	120%
5-alpha-Androstane (SS3)	88%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Total MAH does not include C3- or C4-benzenes
Total PAH does not include Dibenzofuran

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **Soil Blank**

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)
Project:	Ashland	Cleanup Method(s):	
Lab ID:	IG010302-SB	Analysis Method:	GC/FID (EPA 8100 Mod.)
File ID:	14MARR05.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	2 g
Date Prepared:	3/2/01	%Solid:	100%
Date Cleanup:		Extract Volume:	2 mL
Date Analyzed:	14 Mar 2001 5:50 pm	Prep DF:	1
Instrument:	GC_3	Analysis DF:	1
Operator:	DRC	Injection Volume:	0.001 mL
		Batch QC:	IG010302-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	DL mg/kg	Comments
TARGET COMPOUNDS:					
Benzene		U	0.10	0.05	
Toluene		U	0.10	0.05	
Ethylbenzene		U	0.10	0.05	
m/p-Xylene		U	0.10	0.05	
Styrene		U	0.10	0.05	
o-Xylene		U	0.10	0.05	
Isopropyltoluene		U	0.10	0.05	
Propylbenzene		U	0.10	0.05	
1,3,5-Trimethylbenzene		U	0.10	0.05	
1,2,4-Trimethylbenzene		U	0.10	0.05	
sec-Butylbenzene		U	0.10	0.05	
p-Isopropyltoluene		U	0.10	0.05	
n-Butylbenzene		U	0.10	0.05	
Naphthalene		U	0.10	0.05	
2-Methylnaphthalene		U	0.10	0.05	
1-Methylnaphthalene		U	0.10	0.05	
Acenaphthylene		U	0.10	0.05	
Acenaphthene		U	0.10	0.05	
Dibenzofuran		U	0.10	0.05	
Fluorene		U	0.10	0.05	
Phenanthrene		U	0.10	0.05	
Anthracene		U	0.10	0.05	
Fluoranthene		U	0.10	0.05	
Pyrene		U	0.10	0.05	
Benz(a)anthracene		U	0.10	0.05	
Chrysene		U	0.10	0.05	
Benzo(b)fluoranthene		U	0.10	0.05	
Benzo(k)fluoranthene		U	0.10	0.05	
Benzo(a)pyrene		U	0.10	0.05	
Indeno(123-cd)pyrene		U	0.10	0.05	
Dibenz(a,h)anthracene		U	0.10	0.05	
Benzo(g,h,i)perylene		U	0.10	0.05	
Total MAH					
Total PAH					

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	81%	50%	150%
2-Fluorobiphenyl (SS2)	83%	50%	120%
5-alpha-Androstane (SS3)	79%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Total MAH does not include C3- or C4-benzenes
Total PAH does not include Dibenzofuran

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **Blank Spike**

Client:	GTI	Preparation Method:	Solvent Ext. (EPA3570 Draft)	
Project:	Ashland	Cleanup Method(s):		
		Analysis Method:	GC/FID (EPA 8100 Mod.)	
Lab ID:	IG010302-SBS	Matrix:	Soil	
File ID:	14MARR06.D	Preservation:	None	
		Decanted:	No	
Date Sampled:		Sample Size:	2	g
Date Received:		%Solid:	100%	
Date Prepared:	3/2/01	Extract Volume:	2	mL
Date Cleanup:		Prep DF:	1	
Date Analyzed:	14 Mar 2001 6:56 pm	Analysis DF:	1	
Instrument:	GC_3	Injection Volume:	0.001	mL
Operator:	DRC	Batch QC:	IG010302-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	DL mg/kg	Comments
TARGET COMPOUNDS:					
Benzene	18.7		0.10	0.05	74.8%
Toluene	19.8		0.10	0.05	79.2%
Ethylbenzene	20.5		0.10	0.05	82.0%
m/p-Xylene	20.6		0.10	0.05	82.4%
Styrene	19.5		0.10	0.05	78.0%
o-Xylene	21.9		0.10	0.05	87.6%
Isopropyltoluene	20.6		0.10	0.05	82.4%
Propylbenzene	20.4		0.10	0.05	81.6%
1,3,5-Trimethylbenzene	20.5		0.10	0.05	82.0%
1,2,4-Trimethylbenzene	41.2		0.10	0.05	82.4%
sec-Butylbenzene	20.6		0.10	0.05	82.4%
p-Isopropyltoluene	20.5		0.10	0.05	82.0%
n-Butylbenzene	20.2		0.10	0.05	80.8%
Naphthalene	18.4		0.10	0.05	73.6%
2-Methylnaphthalene	17.9		0.10	0.05	71.6%
1-Methylnaphthalene	19.0		0.10	0.05	76.0%
Acenaphthylene	19.1		0.10	0.05	76.4%
Acenaphthene	19.0		0.10	0.05	76.0%
Dibenzofuran	18.9		0.10	0.05	75.6%
Fluorene	18.9		0.10	0.05	75.6%
Phenanthrene	18.2		0.10	0.05	72.8%
Anthracene	18.6		0.10	0.05	74.4%
Fluoranthene	18.2		0.10	0.05	72.8%
Pyrene	18.2		0.10	0.05	72.8%
Benz(a)anthracene	18.3		0.10	0.05	73.2%
Chrysene	18.5		0.10	0.05	74.0%
Benzo(b)fluoranthene	18.3		0.10	0.05	73.2%
Benzo(k)fluoranthene	19.3		0.10	0.05	77.2%
Benzo(a)pyrene	18.5		0.10	0.05	74.0%
Indeno(123-cd)pyrene	20.1		0.10	0.05	80.4%
Dibenz(a,h)anthracene	20.1		0.10	0.05	80.4%
Benzo(g,h,i)perylene	20.5		0.10	0.05	82.0%
Total MAH	121				
Total PAH	339				

Surrogates	%R	Min	Max
Fluorobenzene (SS1)	77%	50%	150%
2-Fluorobiphenyl (SS2)	76%	50%	120%
5-alpha-Androstane (SS3)	73%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Total MAH does not include C3- or C4-benzenes

Total PAH does not include Dibenzofuran

TOTAL PETROLEUM HYDROCARBONS
GC/FID
META Environmental, Inc.
Analytical Results

Client: GTI
Project: Ashland
Calibration Material: Alkane

Instrument: GC3-Rear
Analysis Date: 3/13/2001
Alkane Range: C6-C36

Calibration Data	Total Area				Corrected Area		IS Conc (ug/mL)	Sur Conc (ug/mL)	Response Factors				Calibration Factors			
									TPH	SS1 (FB)	SS2 (2FBP)	SS3 (5AA)	TPH	SS1 (FB)	SS2 (2FBP)	SS3 (5AA)
Solvent Baseline	9147857				9147857		50	50								
Standards									0.87390	0.83139	0.86437	0.89823	34134.20	32746.72	34833.44	35300.82

Sample Data Sample ID	Total Area	IS Area OTP	Other QC Area (DFT)	SS1 Area (FB)	SS2 Area (2FBP)	SS3 Area (5AA)	Sample Size (mL or g)	Final Volume (mL)	Percent Solid	Dilution Factor	SS1 %Rec (FB)	SS2 %Rec (2FBP)	SS3 %Rec (5AA)	TPH	Units	Comments
IG010301-01	1085070711	1766585	1646315	24545	324466	53497	1000.000	25.0	1.000	1	37%	486%	76%	854,000	mg/kg*	* Based on residue
IG010301-01PF	212650109	1841428	1437881	531		52864	1000.000	25.0	1.000	1	1%	0%	75%	122,000	mg/kg*	weight (0.12%)
IG010301-01DF	812144486	1535594	1334873	2552	274723		1000.000	25.0	1.000	1	4%	394%	0%	486,000	mg/kg*	
IG010301-01MF	67390292	1732298	931485				1000.000	25.0	1.000	1	0%	0%	0%	33,900	mg/kg*	
IG010301-02	92913940	1674891	1523028	568603	913270	873050	2.036	2.0	0.585	1	69%	105%	99%	44,900	mg/kg	42,800
IG010301-02PF	134253927	1766716	1306502	1945		580328	2.036	2.0	0.585	1	0%	0%	66%	5,870	mg/kg	6,230
IG010301-02DF	747730009	1612016	1373313	36119	925402		2.036	2.0	0.585	1	5%	106%	0%	36,100	mg/kg	34,150
IG010301-02MF	53051597	1730475	966140		13519		2.036	2.0	0.585	1	0%	2%	0%	2,020	mg/kg	2,930
IG010301-02Dup	853562656	1950374	1746363	544219	899793	812257	1.875	2.0	0.585	1	66%	103%	92%	44,800	mg/kg	43,600
IG010301-02PFDup	129906224	2158433	1474200	1993		617527	1.875	2.0	0.585	1	0%	0%	70%	6,220	mg/kg	6,870
IG010301-02DFDup	709862700	1652936	1349291	36610	947208		1.875	2.0	0.585	1	4%	109%	0%	37,200	mg/kg	34,150
IG010301-02MFDup	47892147	1717554	876648		11984		1.875	2.0	0.585	1	0%	1%	0%	1,930	mg/kg	1,930
IG010313-FBPF	8667108	1194300	852855				1.000	1.0	1.000	1	0%	0%	0%	-73.47	mg/kg	
IG010313-FBDF	14066886	2049233	1493804				1.000	1.0	1.000	1	0%	0%	0%	40.3	mg/kg	
IG010313-FBMF	5727926	1747060	942555				1.000	1.0	1.000	1	0%	0%	0%	-178.98	mg/kg	

results in bold italic have been adjusted for surrogate standard recovery
All samples externally calculated

META

Analyst: [signature]
Date: 3/30/01

Reviewer: [signature]
Date: 3/30/01